KATHERINE M. LAGERSTROM

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EDUCATION

September 2017-April 2023 **Stanford University**, Stanford, CA, USA

Doctor of Philosophy (Ph.D.), Biology
Dissertation title: The wild side of *E. coli*: Investigating the ecology and diversity of *Escherichia coli* in wild animals
Relevant coursework: Molecular Evolution, Conservation and Population Genomics, Genomics, Advanced Genetics, Ecological Statistics, Working with Data: Tools and Techniques, Programming Methodologies, Genomics of Disease in Wildlife Workshop (Colorado State University)

September 2012-May 2017 **University of Nebraska-Lincoln**, Lincoln, NE, USA

Bachelor of Science (B.Sc.), Microbiology
Bachelor of Science (B.Sc.), Environmental Studies
Semester Abroad in New Zealand
Minor in Mathematics
Graduated with Highest Distinction (4.0 GPA)
Honors thesis title: The involvement of *Arabidopsis* calmodulin in plant immunity against *Pseudomonas syringae*

RESEARCH EXPERIENCE

2017-2023 **Stanford University**, USA, Department of Biology

PhD student and lab safety manager, Advisor: Elizabeth Hadly

- Uncovering the true strain diversity of *E. coli* in wild animals

- Examining host and environmental factors contributing to within-host *E. coli* phylogroup community composition
- Assessing the distribution, prevalence, and transmission potential of virulence factors and antimicrobial resistance genes in *E. coli* from wild animals

2013-2017 **University of Nebraska-Lincoln**, USA, Department of Plant Pathology
Undergraduate researcher and lab technician, Advisor: James Alfano

- Investigating the effects of calmodulin on *Arabidopsis* immunity to *Pseudomonas syringae*
- Understanding *P. syringae* pathogenesis and suppression of plant immunity

PUBLICATIONS

Lagerstrom, K. M., Scales, N. C., and Hadly, E. A. 2024. Impressive pan-genomic diversity of *E. coli* from a wild animal community near urban development reflects human impacts. *iScience* **27**(3); 109072. https://doi.org/10.1016/j.isci.2024.109072

Lagerstrom, K. M., Vance, S., San Juan, P. A., Gupta, T. D., and Hadly, E. A. 2023. Utilizing animal gut microbiomes to mitigate biodiversity loss in the Anthropocene. *Evolutionary Ecology Research* **2023**; 29-43. www.evolutionary-ecology.com/Biodiversity%20Challenge/Lagerstrom.pdf

Lagerstrom, K. M. and Hadly, E. A. 2023. Under-appreciated phylogroup diversity of *Escherichia coli* within and between animals at the urban-wildland interface. *Applied and Environmental Microbiology* **89**(6); e00142-23. https://doi.org/10.1128/aem.00142-23

Lagerstrom, K. M., Vance, S., Cornwell, B. H., Ruffley, M., Bellagio, T., Exposito-Alonso, M., Palumbi, S.R., and Hadly, E. A. 2022. From coral reefs to Joshua trees: What ecological interactions teach us about the adaptive capacity of biodiversity in the Anthropocene. *Philosophical Transactions of the Royal Society B* **377**(1857)*:* 20210389. http://doi.org/10.1098/rstb.2021.0389

Glidden, C. K., Nova, N., Kain, M. P., **Lagerstrom, K. M.**, Skinner, E. B., Mandle, L., Sokolow, S. H., Plowright, R. K., Dirzo, R., De Leo, G. A., and Mordecai., E. A. 2021. Human-mediated

impacts on biodiversity and the consequences for zoonotic disease spillover. *Current Biology* **31**(19); R1342-R1361. https://doi.org/10.1016/j.cub.2021.08.070

Lagerstrom, K. M. and Hadly, E. A. 2021. The under-investigated wild side of *Escherichia coli*: Genetic diversity, pathogenicity and antimicrobial resistance in wild animals. *Proceedings of the Royal Society B* **288**(1948); 20210399. http://doi.org/10.1098/rspb.2021.0399

Fischer, E. K., Alvarez, H., **Lagerstrom, K. M.,** McKinney, J. E., Petrillo, R., Ellis, G., O'Connell, L. A. 2020. Neural correlates of winning and losing fights in poison frog tadpoles. *Physiology & Behavior* **223**; 112973. https://doi.org/10.1016/j.physbeh.2020.112973

Lagerstrom, K. M. 2017. The involvement of *Arabidopsis* calmodulin in plant immunity against *Pseudomonas syringae*. *Environmental Studies Undergraduate Student Theses*. 205. https://digitalcommons.unl.edu/envstudtheses/205

PEER-REVIEWED JOURNALS

The Lancet Planetary Health, mBio, Microbial Genomics, Microbial Pathogenesis, Polish Journal of Microbiology

PRESENTATIONS AT PROFESSIONAL MEETINGS

Lagerstrom, K. M. and Hadly, E. A. Understanding the eco-evolutionary dynamics of *Escherichia coli* in animals at the wildland-urban interface for public health and conservation. Poster Presentation at: Ecology and Evolution of Infectious Disease Conference; 2024 June; Stanford, CA, U.S.A.

Lagerstrom, K. M. and Hadly, E. A. Understanding the eco-evolutionary dynamics of *Escherichia coli* in animals at the wildland-urban interface for public health and conservation. Poster Presentation at: ESA Annual Meeting; 2023 August; Portland, OR, U.S.A.

Lagerstrom, K. M. and Hadly, E. A. Phylogroup distribution and genetic diversity of *Escherichia coli* from a wild animal community imbedded in a human landscape, Poster Presentation at: ASM Microbe; 2023 June; Houston, TX, U.S.A.

Lagerstrom, K. M. and Hadly, E. A. The wild side of *E. coli*: Investigating the genetic diversity and distribution of *Escherichia coli* in wild animals, Poster Presentation at: ISME18; 2022 August; Lausanne, Switzerland.

Lagerstrom, K. M. and Hadly, E. A. The wild side of *E. coli*: Investigating the genetic diversity and distribution of *Escherichia coli* in wild animals, Poster Presentation at: 8th Conference on Beneficial Microbes; 2022 July; Madison, WI, U.S.A.

Lagerstrom, K. M. and Hadly, E. A. The wild side of *E. coli* and its implications for human health, Oral Presentation at: Bay Area Ecology and Evolution of Infectious Disease Conference; 2022 February; Virtual.

Lagerstrom, K. M., Kim, P. and Alfano, J. The effects of calmodulin on plant immunity to *Pseudomonas syringae*, Poster Presentation at: XVII International Congress on Molecular Plant-Microbe Interactions; 2016 July; Portland, OR, U.S.A.

INVITED SEMINARS

1. Alumni Fireside Chat for CASNR Honors Program, University of Nebraska-Lincoln; 2024 April; Lincoln, NE, U.S.A.
2. "The wild side of *E. coli*: Investigating the distribution and diversity of *Escherichia coli* in wild animals at Jasper Ridge"; Jasper Ridge Biological Preserve Evening Lecture Series; 2022 April; Stanford, CA, U.S.A.
3. "ABR and Public Health"; ENVR189H Honors Seminar, University of Nebraska-Lincoln; 2020 November; Lincoln, NE, U.S.A.

OUTREACH AND SERVICE

2024-Present	**Executive committee member;** *Board of Trustees***,** Applied Microbiology International (AMI)
2024-Present	**Member;** *One Health Advisory Group,* Applied Microbiology International (AMI)
2019-2022	**Coordinator;** *Graduate Student Programming Board (GSPB),* Stanford University

2021-2022	**Graduate student representative;** *Jasper Ridge Faculty Advisory Committee,* Stanford University
2018-2022	**Lab safety manager;** *Hadly Lab,* Stanford University
2020-2022	**Founder;** *Microbial Ecology Journal Club,* Stanford University
2021	**Member;** *Biology Pre-Orientation Program committee*, Stanford University
2020-2021	**Member;** *Return-to-Research committee*, Stanford University
2019	**Poster session judge;** *Stanford Research Conference (SURA),* Stanford University
2018-2020	**Mentor;** *Biology PhD Program,* Stanford University
2019-2020	**President;** *Stanford Science Pen Pals,* Stanford University
2017-2019	**Graduate student mentor;** *Stanford Science Pen Pals,* Stanford University
2019	**Representative;** *Graduate Student Information Center (GSIC),* Stanford University
2018-2019	**Member;** *Biology mentorship committee*, Stanford University
2017-Present	**Member;** *Association for Women in Science (AWIS)*
2014-2016	**President;** *Microbiology Club*, University of Nebraska-Lincoln
2014, 2016	**Lab station coordinator;** *UNL Women in Science Conference*, University of Nebraska-Lincoln

TEACHING AND MENTORSHIP

2022-Present	**Research mentor;** 40 high school students' independent research projects, Polygence
2022	**Teaching assistant;** *Ecology (Bio 81)*, Stanford University
2022	**Instructor/course designer;** *Introduction to Nanopore Sequencing*, Stanford University
2022	**Research mentor,** Engage with Girls is STEM (EWGIS) Research Program
2020	**Research mentor;** *Basser Program*, Stanford University
2019	**Research mentor;** *Biology Summer Undergraduate Research Program (BSURP)*, Stanford University
2018	**Research mentor;** *Vice Provost for Undergraduate Education (VPUE) Summer Research Program*, Stanford University
2018	**Teaching assistant;** *Ecology for Everyone (Bio 30)*, Stanford University

HONORS AND AWARDS

2022	Stanford Community Impact Award, Stanford University
2019	Excellence in Teaching Award, Stanford University
2017	Chancellor's Scholar, University of Nebraska-Lincoln

FELLOWSHIPS AND GRANTS

2018-2020	Philippe Cohen Fellowship	Stipend/tuition
2018	Mellon Grant (Research)	$ 6000 USD
2015, 2016	Milton E. Mohr Biotechnology Degree Program Scholarship	$ 1000 USD/year